Project Meeting

Project Name: Deep Learning-aided label-free Correlative Light Electron Microscopy.
Meeting Purpose: Follow-up meeting.
Place: Laboratorio de Procesado de Imagen. Hybrid (face-to-face & virtual) meeting.
Date: 28/06/2024. **Start:** 10:00. **End:** 11:30.

Attendees:

Name	Institution
Biagio Mandracchia **(PI1)**	Universidad de Valladolid **(UVa)**
Rosa María Menchón Lara **(PI2)**	Universidad de Valladolid **(UVa)**
Marcos Martín Fernández **(MMF)**	Universidad de Valladolid **(UVa)**
Juan Pablo Casaseca de la Higuera **(PCH)**	Universidad de Valladolid **(UVa)**
Miguel Ángel Martín Fernández **(MAM)**	Universidad de Valladolid **(UVa)**
Patricia Amado Caballero **(PAC)**	Universidad de Valladolid **(UVa)**
Clara Martin de las Heras **(CMH)**	Universidad Francisco de Vitoria **(UFV)**
Juliana Manosalva Pérez **(JMP)**	Instituto de Salud Carlos III **(ISCIII)**

Agenda & Notes:

A follow-up meeting was convened to assess the project's progress, with a particular focus on the development of the project's core infrastructure, ongoing image data acquisition, and initial modelling efforts. The team also held a discussion on outreach strategies.

- Initial Database Status (PI1, PI2, CMH, JMP):
  The initial database has been deployed and is currently hosted on the servers of the LPI group. The infrastructure includes automated access control and backup mechanisms to ensure data integrity and availability.

- Presentation of bioMONAI (PI1, PI2, MMF, PCH, PAC, MAM):
  Modular platform for training, validating, and deploying deep learning models for microscopy image analysis. The platform is being customized to integrate seamlessly with the project's data workflows and specific requirements.

- Dissemination Planning (PI1, PI2):
  A plan for disseminating the project's results through scientific conferences and journal publications was outlined. Potential conferences (CASEIB, SPAOM) and target journals are currently being evaluated.

- Next Steps:
  The upcoming priorities defined during the meeting are: (i) evaluation of model reliability for subcellular structure segmentation, focusing on identifying which label-free microscopy techniques provide the most accurate predictions; (ii) selection of optimal model–modality combinations for future project phases; (iii) Integration of bioMONAI with the project's workflow; (iv) recruitment of research staff, funded by the project, to support ongoing development, data processing, and model evaluation activities.

Conclusion:

The project is progressing according to plan, with a solid infrastructure in place and the initial dataset already in use. The development of the bioMONAI platform and the planned evaluations mark key milestones toward the project's goals. Collaborative discussions during the meeting helped to align priorities and define the next steps clearly.

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